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Small Unmanned Aerial Systems in Law Enforcement

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ABSTRACT

Small Unmanned Aerial Systems (sUAS) are becoming more popular for law enforcement applications. Their affordability, effectiveness, safety, and ease of use appeal to agencies that otherwise would have no aerial asset. The regulations that govern the use of sUAS should be less restrictive for law enforcement, allowing them to be used anywhere the need arises and not simply within a defined geographical area pre-approved by the Federal Aviation Administration (FAA). Although opponents believe that the use of such camera equipped craft is a violation of the 4th Amendment to the United States Constitution, the U.S. Supreme Court has held that aerial observation of illegal activity does not constitute an illegal search. Public perception of sUAS is driven by the entertainment and news media. These sUAS are not equivalent to the drones that patrol the skies of Afghanistan neither are they the machines of Hollywood that seem to defy physics and all reason. Law enforcers need to educate those who make the regulations, those who enforce the regulations, and the public they serve to bring about changes necessary to freely use these tools as if they were any other helicopter or fixed wing aircraft in the fleet.

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INTRODUCTION

Small unmanned aerial systems (sUAS) are readily available on the open market and their appeal is not just to the hobbyist. These remotely piloted vehicles, when equipped with a camera or other sensors, give the users a “bird’s eye view”. For the last several years, their value to law enforcement has been recognized and agencies across the United States have put them to use. But one should not confuse these nimble aircraft with the “drones” seen on the evening news and they should not be called drones either. Michael Toscano is the president and chief executive officer of the Association for Unmanned Vehicle Systems International. In testimony before the United States Senate Judiciary Committee in March of 2013, he spoke about the use of unmanned aerial systems in law enforcement applications. He told the committee members that he does not use the word drone when he speaks of these vehicles. He refers to them as unmanned aircraft systems. He added "The term 'drone' also carries with it a hostile connotation and does not reflect how UAS are actually being used domestically" (DePalma, 2014, para.5).

Most people who have been involved in law enforcement are familiar with remotely controlled vehicles used by bomb squads and S.W.A.T. teams. These tools range in complexity from the sophisticated “bomb robot” used to photograph, move and render explosives useless, to an underwater camera used to search lakes and rivers, to a simple wheeled or tracked camera platform used by tactical officers to see in places without exposing themselves to harm (Sharpe, 2010).

In the United States, the regulation of airspace and the craft that navigate it is the responsibility of the Federal Aviation Administration (FAA). The FAA is tasked with

ensuring safety in the skies, but the regulations governing the use of sUAS by law enforcement agencies are overbearing. In the hands of the hobbyist, a sUAS is governed only by an advisory circular from the FAA. The same craft however, when pressed into service by law enforcement is so strictly regulated that permission must be sought to put one into use and once approved, the craft can only be flown within the area that the FAA has approved. The regulation of small unmanned aerial systems should be less restrictive for law enforcement agencies that, like the FAA, are entrusted with the safety of the public.

The application process for authorization to start a sUAS program is months long. Once the FAA has approved the area in which an agency can train, officers can begin to train with and test their systems. After a suitable training period, FAA examiners test the pilot officers for proficiency and authorize the program to move beyond the training phase so that the asset can be deployed. Once this takes place however, the craft can only be flown in the limited geographic area previously approved by the FAA. If that area is within what the FAA calls Class G, or uncontrolled airspace, it may be flown to an altitude of no more than 400 feet above the ground, in daylight hours, within sight of the pilot and only within the defined perimeter of an incident. Regulations that govern use in other classes of airspace become even more restrictive (Lowery, 2010).

The application process and vetting of the mission or need for a sUAS is proper. The strict controls on training and testing are necessary for the FAA to fulfill its obligation to keep the airways safe. Limitation to daylight hours and within sight distance is all necessary but the limitation of the use to a defined, pre-approved area is

too restrictive for the emergent and dynamic situations encountered daily by law enforcers. In an area where an agency may be called upon to respond to an incident that spans the boundaries of multiple jurisdictions, the operators need the latitude and authority to put that asset to use. When lives are on the line, the geographical restriction is unacceptable.

POSITION

Small unmanned aerial systems are affordable, even for agencies with limited budgets. They are highly effective in many situations such as search and rescue, over watch for tactical operations, managing events such as disasters, examining traffic crash scenes and intelligence gathering. They are also safe and easy to operate. Some are controlled with typical joystick controls most often seen in the radio controlled hobbies and others are controlled by input from a laptop or tablet computer running proprietary software that enables the user to point and go.

The usefulness of an aerial law enforcement asset is evident but, not every agency has the revenue and budget to obtain and maintain an aviation division. The price of fixed wing aircraft and helicopters continues to rise. The economic slump that has affected the nation in the last several years has certainly put a damper on spending causing agencies to “do more with less” (Mullen, 2010, para. 4). Some of the sUAS products on the market today can be purchased as “ready to fly” packages for less than $50,000.00. Considering that purchasing and equipping a brand new squad car can cost as much as $45,000.00 without mobile data terminals, the addition of an unmanned aircraft to the tool box is reasonable (Kozlowski, 2011). Sharing the expense of the craft with other agencies as a regional asset or having other agencies pay a usage fee

each time they request deployment of the sUAS, makes it an even more affordable and reasonable expense (Povilaitis, 2010).

Training and maintenance are other areas in which sUAS can save an agency money. The costs associated with training a pilot and paying his or her salary is only part of the equation when it comes to aviation. Maintaining fixed wing aircraft is expensive and those expenses only increase when it comes to helicopters because of the sheer number of moving parts involved. Due to the wear and tear that the vibrations in helicopters cause, many parts are limited life parts and must be replaced after a certain number of operating hours. Many air assets in use across the nation today are turbine or jet powered. The expense of maintaining turbine engines is greater than that of internal combustion engines (Mullen, 2010).

Insurance is another expense to consider. In the world of civil aviation, most companies will not hire a pilot with fewer than 1500 hours of flight time in the particular type of aircraft to be flown because they cannot insure that pilot for a reasonable premium. It does not mean that the pilot is not skilled, just that there is a threshold at which the pilot is considered experienced. Although law enforcement agencies may not be insured in the same fashion, they should take note of the substantial flight hours that civil and commercial aviation seek in an “experienced” pilot.

While some law enforcement agencies use small scale versions of larger helicopters which require a certain level of skill and finesse, some small unmanned aerial systems are very easy to operate. A vast array of micro sized technology carried on board actually controls the flight of the craft (Kozlowski, 2011). The human pilot on the ground simply gives input as to when to move and where to move to. The flight

controller or “brain” of a sUAS, knows where it is at all times via GPS location. It keeps tabs on all of its operating parameters and knows when it is low on battery power. If communication is lost between the pilot’s control interface and the craft, it automatically returns to the GPS coordinates of its departure and safely lands itself. It will do the same if its battery is depleted below a certain level and the pilot has not already ordered its return. These built-in safety features are necessary to minimize the chance that the craft might lose control and crash to the ground causing property damage or worse, personal injury. Requiring that a sUAS employed by law enforcement has these qualities, is very reasonable but severely restricting where the craft can be used is not.

Small unmanned aerial systems are very effective in emergent situations. An incident commander who has responded to the scene of a disaster, a homicide or other serious crime or a vehicle crash can benefit from an overview of the scene in real time. The information that is beamed to the command post from a sUAS is not only helpful in decision making at the command level, but it can also be sent to the officers on the street via mobile data terminals to give them an edge in situational awareness (Mullen, 2010). The Matrix Consulting Group determined that the observation ability of an officer in the air is equal to having 23 officers at ground level (as cited in Povilaitis, 2010). Lieutenant Michael Mullin is the commander of the air support division of the Orange County Sheriff’s Office in California and asserts “The ability to quickly deploy a UAV with advanced technologies and capabilities to an event anywhere in your jurisdiction will be a significant operational benefit and tactical advantage” (Mullen, 2010, para. 18). The geographical operating restrictions placed on the sUAS user by the FAA are the largest limiting factor to the benefits of this technology.

COUNTER POSITION

Opponents of the sUAS technology do not believe that it is regulated enough. One of the arguments against the use of these systems is that it constitutes a violation of the 4th amendment to the United States Constitution for a law enforcement agency to use such a device to gather information. Other resistance to this valuable tool can best be labeled as poor perception spawned by misinformation. A sUAS in the hands of a trained, professional, law enforcement officer is a tool much like an officer's squad car, shotgun or sidearm. The public, however, perceives these "eyes in the sky" as offensive weapons to be used against them. That perception, however wrong, is their reality. Providing factual information to the public is the best way to ease fear and counter the misinformation typically spread by the entertainment industry and the news media.

Use of sUAS by law enforcement is not a violation of the right to privacy. The 4th amendment to the United States Constitution ensures that citizens are secure in their property, protected from unreasonable search and seizure. In *California v. Ciralo* (1986), the United States Supreme Court ruled that a search conducted by two California officers was legal. The officers had received information about a marijuana grow operation. Unable to see the marijuana plants from a position at which they could legally stand, the officers employed a civilian pilot to fly them over the location in a fixed wing aircraft. From an altitude of one thousand feet above ground level, the officers were able to see the marijuana plants. With this information, they obtained a search warrant, entered the premises and seized the contraband (Frazier, 2010).

Another United States Supreme Court ruling involving law enforcement aviation came in *Florida v. Riley* (1989). This was the first case that involved rotor-wing aircraft (helicopters) used to observe criminal activity (Marino, 2013). In this case, the investigators were acting on a tip just as investigators were in the previously cited case. Unable to see the alleged grow operation from the ground, the officers used a helicopter to over fly the suspect's home. In this case however, at the lower altitude of four hundred feet above ground level. The court ruled that the search was legal affirming earlier rulings that open areas adjacent to structures have a "relaxed expectation of privacy" (Frazier, 2010).

Given that sUAS are just smaller versions of the aircraft that have been used in law enforcement for years, it stands to reason that the court rulings governing those larger aircraft will apply equally to them. Therefore, it is reasonable to assume that criminal activity observed from a sUAS at an altitude between four hundred feet and one thousand feet above ground level will be legal (Frazier, 2010)

Other opponents of sUAS technology resist its use because of the negative perception about "drones" and general ignorance of the broad scope of missions of law enforcement aerial assets. Law enforcement can influence and change that perception with the facts. If asked about airborne law enforcement, the first image that might come to mind is of the highly advanced helicopter in the 1983 motion picture Blue Thunder. In that movie, actor Roy Schieder plays a tough police officer who pilots a helicopter that can do anything including see through walls. This same era also produced a popular television show called Airwolf about a highly evolved government helicopter that is

stolen by the “good guy” and used to conduct missions for a secret governmental agency.

With examples like this coming to the public through entertainment media and the once almost nightly news reports about the much touted Predator drones the military uses in the fight against terror, it is easy to see why the population might fear the ability of this technology if deployed domestically. The fact is that the technologies seen so often in the entertainment media do exist. Camero Inc. is an Israeli technology business that markets products to military and law enforcement customers around the world. They have developed an instrument that uses ultra wideband microwave to see through walls. The instrument can see through as much as 20 inches of concrete and detail images on the other side in 3 dimensions (Manson, 2008). The instrument however, has to be in contact with the wall thus eliminating airborne use. The once fantastical ideas of Hollywood have come from the realm of imagination into the world of reality and there are certainly justifiable uses for them outside of war fighting.

Much of the exposure to this technology outside of the movies comes from news coverage of the armed drones that patrol the skies over Afghanistan. These aircraft are large and powerful enough to carry a heavy payload. The sUAS that are most useful to local law enforcement weigh mere pounds and have payload capabilities measured in ounces. They simply cannot take on such a load. What users of sUAS need to do is educate the public about the laws governing the use of such equipment. These laws are in place and have been in place for some time.

Kyllo v. U.S. (2001) is a case in reference to the use of Forward Looking Infrared Radar to penetrate the walls of a home. The court held that the use of such equipment

to peer into a home is a search and cannot be conducted without a warrant (Shinnamon, 2011). Regardless of how an officer searches the confines of a structure, if the search looks into that structure from a position that the officer would otherwise not be able to have legal access to, then it requires a warrant. Citizens have nothing to fear about the use of sUAS by law enforcement. Their homes are still safely protected from prying eyes and their privacy will only be encroached upon by warrant.

RECOMMENDATION

War is often credited with the greatest advances in medicine and technology. Having been at war for now over a decade, a great deal of the technology that has been developed for use by the fighting men and women of the United States armed forces, has been refined so as to be applicable in the day to day operations of law enforcement. Small unmanned aerial systems are one such technological advance. Hand launched radio controlled aircraft carrying a small camera were used in the early part of the war on terror to give our soldiers a tactical advantage in the field (Kozlowski, 2011). These gave way to the large powerful drones that carry weapons, cameras and sensors and can loiter over a battlefield for better than two days at a time. Craft of such size are not practical for local law enforcers who most often just need an overhead view of the scene of a vehicle crash, a homicide or a S.W.A.T. operation and not a view of what is over the horizon. Laws and regulations are in place to ensure the safe and legal operation of such craft so that the public can rest assured that their rights are respected and upheld by those who are sworn to serve and protect them. Confining their use to pre-approved geographical areas is counterproductive. The FAA is concerned with safety and rightly so. One of the most fundamental duties of a pilot of any aircraft is seeing other aircraft

and avoiding them. Because sUAS do not yet have technology that will do this for them, they must be operated within the unaided sight of the pilot so that he or she, along with other officers used as observers, can see it at all times and avoid such air traffic conflicts. These trained pilot/operators can certainly do that just as well a half mile from an airport as they can in wide open country.

These sUAS are a logical progression of airborne law enforcement. In this day and age of making every dollar go farther, having such affordable technology available to agencies that otherwise would have no aerial resources is imperative. As the technology continues to be improved, the regulations governing use of sUAS should evolve as well. The restrictions placed on law enforcement users of sUAS confine operations to a pre-approved geographical area. The dynamic and fluid nature of law enforcement incidents can often have no regard for boundaries real or imagined and therefore these restrictions should change.

Once an agency has invested in the purchase of a sUAS, the training of pilot/operators and observers as well as support personnel, that agency ought to be permitted to use the asset anywhere without fear of reprisals from the federal government.

An article in the July/August 2011 issue of Air Beat Magazine notes that there are over 50 companies and organizations in the United States that are designing and manufacturing some six hundred different unmanned aircraft (Bailey & Ligon, 2011). There will no doubt be a future for unmanned aerial vehicles in military/government operations, business and law enforcement. Much of what is known of the technology and its uses is relatively new. The FAA has designated six facilities across the United

States for research, development and testing of unmanned aerial technology. One of those test sites is at Texas A&M University, Corpus Christi. As lawmakers and the public become more educated about sUAS, their capabilities, uses and limitations the fear that “Big Brother” is watching will subside.

Those who lobby on behalf of law enforcement interests, the private sector companies who have developed these sUAS for sale and the 6 designated research and development test sites would be great partners in lobbying for relaxing the geographical restrictions on law enforcement when it comes to the use of sUAS. Together, these parties could help establish operating rules and laws that will not only ensure the safe use of airspace but will add another arrow to the quiver of law enforcers everywhere who need every advantage they can get.

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